GOVERNMENT OF INDIA

DEPARTMENT OF INDUSTRIES
AND
SUPPLIES

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REPORT OF THE SILK PANEL

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INDUSTRIES AND SUPPLIES DEPARTMENT

REPORT OF THE SILK PANEL.

INTRODUCTORY.

In consonance with the policy of rapid industrialisation of the country, the Government of India appointed a number of panels, with the function of making recommendations to Government regarding the development of industries, both existing and new. These recommendations were to be so framed as to enable Government to prepare a detailed phased plan for the five years following the cessation of hostilities, as the first stage of a 15-year plan of industrial development for the whole country.

2. In order to assist them to formulate recommendations, Panels were to be supplied as far as possible, with factual information prepared by the panel secretaries. A directive was also furnished specifying the points which the Panels were expected to cover in their recommendations. The directive is given as appendix (a).

3. In pursuance of this scheme the Panel on Silk was constituted (vide No. P-1(23)|44 dated 8th March 1945) with the following personnel :—

Chairman :—Rajasevaprasakta Navaratna Rama Rao.

Members :—

Rai Bahadur S. N. Bose

Mr. R. Peychaud

Mr. H. Pulman

Mr. S. Ratnam

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Secretary :—Mr. Humayun Mirza, Assistant Industrial Adviser.

4. In accordance with paragraph 2 of the General Directive, the Secretary proceeded with the work of collection of factual data by issuing questionnaires to the Governments of the various silk-producing Provinces and States. On the basis of the information received, the Secretary prepared the Preliminary Report for the consideration of the Panel.

5. The Panel wish to place on record their sense of gratitude for the whole-hearted co-operation of these Governments and their Sericultural Departments; and they are in a very special sense indebted to the Development Minister of Jammu and Kashmir, the Superintendent of Sericulture in Mysore, and the Directors of Industries of Madras, Bombay, Punjab, Bengal, Assam, Bihar and the Central Provinces.

6. The Silk Panel held seven meetings on the dates given below :—

13th and 14th August 1945—at New Delhi.

15th April 1946—at New Delhi.

13th and 14th June 1946—at Bangalore.

25th September 1946—with the representatives of Provinces and States at New Delhi, and

26th September 1946 at New Delhi for the consideration of the suggestions received from the representatives at the meeting on the previous day.

After the meeting on the 15th April 1946, the Silk Panel prepared and submitted to Government a Provisional Memo. of findings and recommendations agreed upon as the result of discussions on the material so far available. The meetings on the 13th and 14th June 1946 were held at Bangalore to fill up certain lacunae in factual information relating to moriculture and the spun silk industry, and advantage was also taken of the opportunity for a frank discussion with the official and non-official representatives of the sericultural industries of Mysore and Madras.

7. The present report in effect expands and elucidates the points raised and views expressed in the Provisional Memo. with the addition of matters on which factual information became available subsequently. The portions relating to the spun silk industry, and improvement of moriculture are instances in point. The recommendations of the Silk Panel have been framed as far as possible to cover the points specified in the Government of India directive. As an accurate and comprehensive review of the present state and potentialities of an important Indian industry, and as containing a carefully thought out plan for realising those potentialities, this result of the Panel's labours might, it is hoped, be of use not only to the Government of India, but to the public interested in sericulture.

8. The Panel wish to record their appreciation of the very able, enthusiastic and painstaking manner in which Mr. Humayun Mirza has collected a vast amount of material, sometimes with great difficulty. While his intelligent presentation of the factual information facilitated our work his unfailing courtesy made it a pleasure.

SCOPE OF THE ENQUIRY AND NATURE OF THE INDUSTRY.

9. The Silk Panel have confined their enquiry to sericulture proper, comprising all the operations from the cultivation of mulberry to the production of raw silk and spun silk. They have not dealt with the non-domesticated silk worms—the tassar, the muga, and the eri—for their distribution is confined to definite localities making them a local rather than an all-India Interest; the scope for their development is also limited. They recommend however that Provincial Committees of Experts might be constituted to investigate the problems connected with the development of these industries. The Panel did not concern themselves with the utilisation of raw silk, which they considered properly to come under weaving.

10. The sericultural industry of India is an important national asset with strongly marked characteristics. It consists of two well defined sections :

(1) The production of cocoons; and

(2) The production of raw silk, including the utilisation of by-products.

11. While the first part is essentially a cottage industry subsidiary to agriculture, the second is a factory industry utilising the collected output of the first. There have been no recorded instances of silk worm rearing having been successfully practised otherwise than as a home occupation ; and though small scale reeling with primitive appliances is still practised in villages, this is undoubtedly a late survival of an obsolete system doomed to speedy disappearance. The reeling or factory part of the industry may be regarded as the culmination of sericulture, since its function is to convert the cocoons produced by the several village homes into raw silk which is a world commodity. There is a division of work and a mutually beneficial co-ordination of functions between the two sections. This distinction and inter-dependence must be borne in mind in formulating any policy for the industry as a whole. The first section of sericulture which consists of all the operations from the cultivation of mulberry to the harvesting of cocoons has certain definite characteristics. It is extremely sensitive to psychological influences. It would be no exaggeration to call it an industry based on domestic hopes and fears, dependent almost wholly on the home's ability and inclination to work, and involving no great commitment in the way of capital. If the return from work seems no longer worthwhile, or the home suffers losses, it gives up rearing silk worms, and the field is cleared of mulberry and cultivated with other crops. The predominance of the human factor which makes the industry so sensitive, also invests with a special human value as making

it an efficient instrument of welfare and employment. In fact, it is in India the home industry *par excellence* since everything which can be claimed for domestic cotton spinning can be claimed equally for sericulture with the difference that the returns may be in silver instead of in nickel.

12. While the human interest of the industry would of itself entitle it to the solicitude of the State, its importance as the source of an essential material of war places it high in the scale of national values.

13. The reeling of silk worms is an operation which in advanced sericultural countries is conducted in well equipped filatures. In India, till recently, reeling was much the most backward part of the industry. Even before the outbreak of war, experience of well reeled imported silk created a discontent with the charka product, and the instinct of self-protection led to a beginning in the establishment of filatures. The stifling pressure of foreign competition resulted in an all-India cry for protection which led to the appointment of two Tariff Boards in 1933 and 1938.

14. The protection granted as a result of the recommendations of the first Tariff Board having proved insufficient, the second one was appointed. Before any action could be taken on the report of the latter, the outbreak of war rendered tariff protection unnecessary, and brought to Indian silk its due recognition. Since a large quantity of filature silk was required for war purposes, Government specially stimulated the development of filatures, and gave sericulture an impetus such as it had never had before. The impulse is now exhausted, and the present problem is how to safeguard against collapse the industry which the State expanded for its own purposes and which is also an essential national asset.

First Quinquennium.

15. The target recommended by the Panel for the first quinquennium of the plan is the maintenance and consolidation of the present position of the industry.

16. The total cessation of foreign imports into India on the outbreak of war, acted, as might be expected, as a powerful stimulus to Indian sericulture. Against an Indian consumption of over 10 million pounds of silk and silk products per year, India was at that time producing less than 1-1|4 million pounds. The urgent war-need of the United Nations for silk of the highest quality for the fabrication of parachutes and other purposes created a new and imperative demand for the best grade of filature silk. Meanwhile, the diminution of imported consumers' goods in India increased the purchasing power of the classes who constituted the main market for silk. In these circumstances the prices of silk shot up to unprecedented heights. Sericulture being an extremely sensitive industry, it responded rapidly to this stimulus. The statement given below sets forth the rise in prices :

17(a) *Statement showing the average prices realised in the auction sales of Silk received in Mysore Government Depots from 15-10-43 to 31-5-45.*

(Courteously furnished by the Special Officer for Silk Filature Expansion Scheme).

Average prices realised for lbs. of

Month of sale.	Rejected Filature Silk. 1	"AAA" 2	"AA" 3	"A" 4	"B" 5	"C" 6	"CC" 7	Inferior 8	Duppion. 9
1943.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
November	..	..	41 0 0	41 0 0	35 4 0	30 4 0	27 12 0	25 8 0	18 8 0
December	..	..	41 14 0	38 0 0	35 8 0	30 8 0	28 6 0	28 10 0	17 9 0
1944.									
January	..	..	43 0 0	40 0 0	37 0 0	35 4 0	34 2 0	29 6 0	16 6 0
February	..	..	42 0 0	41 8 0	39 5 0	37 3 0	36 8 0	33 12 0	20 13 0
March	..	..	44 0 0	41 0 0	40 5 0	39 0 0	38 4 0	31 0 0	22 0 0
April	..	59 0 0	49 4 0	45 14 0	42 8 0	40 1 0	38 2 0	30 0 0	21 4 0
May	55 0 0	38 0 0	38 0 0	40 0 0	38 0 0	33 0 0	31 0 0	22 8 0	19 0 0
June	..	35 4 0	34 14 0	38 0 0	36 8 0	31 10 0	30 8 0	27 0 0	19 8 0
July	..	82 7 0	66 0 0	55 5 0	45 4 0	43 0 0	38 12 0	34 0 0	25 8 0
August	93 0 0	90 8 0	87 13 0	66 14 9	53 14 0	45 15 0	46 0 0	40 0 0	30 0 0
September	..	81 0 0	68 9 0	52 12 0	43 11 0	39 12 0	36 8 0	31 0 0	27 15 0
October	61 0 0	..	56 0 0	48 2 0	39 0 0	36 10 0	35 0 0	31 0 0	23 9 0
November	61 0 0	56 0 0	48 13 0	39 1 0	32 7 0	30 4 0	25 1 0	25 8 0	18 13 0
December	..	60 0 0	59 11 0	48 9 0	42 1 0	34 3 0	33 8 0	31 10 0	27 0 0
1945.									
January	..	72 0 0	62 11 0	60 3 0	50 9 0	43 0 0	40 0 0	33 4 0	19 8 0
February	..	82 5 0	74 13 0	60 0 0	52 0 0	44 1 0	42 8 0	37 4 0	30 2 0
March	..	112 0 0	94 0 0	82 9 0	70 15 0	68 1 0	60 0 0	45 0 0	25 5 0
April	..	118 0 0	108 1 0	79 15 0	66 6 0	61 6 0	56 8 0	40 4 0	29 8 0
May	102 0 0	72 0 0	63 0 0	61 14 0	53 7 0	50 1 0	45 8 0	35 4 0	22 0 0
June	..	71 0 0	67 0 0	63 13 0	53 15 0	46 5 0	44 0 0	36 4 0	22 8 0

(b) During this period filature silk (except small quantities, rejected by the Ordnance Depot) was not available for the civilian market. It was all being supplied to the Government of India at a formula-price which was round about Rs. 29 per lb.

18(a) The following figures which show the increase in the acreage under mulberry (acreage under mulberry being an index of silk production at any given period) show the extent of expansion during the war.

	1938-39.	1939-40.	1945-46.
Mysore	27,187	30,000	78,009
Madras	5,725	5,720	18,026
Bengal	(not available)	8,893	15,516

(b) During this period there was a far-reaching change in the nature of the reeling. Since an essential part of the demand was for filature silk fit for military purposes the establishment of filatures was encouraged by the Government of India acting through the Provincial and State Governments, and the number of filature basins increased almost fourfold in consequence.

19. Filature silk was sold to the Government at prices fixed on the cost of production which were very much less than the prices which could have been realised in the open market. It is thus clear that the sericultural industry which expanded during the war rendered vital service to the State at considerable sacrifice to itself. It has for this reason also a claim to the solicitude of the Government. If the industry is left unsupported at this stage it is not improbable that it may shrink —or even collapse—as rapidly as it expanded. This would not merely result in throwing lakhs of homes out of employment but would seriously injure an asset which is an important source of war strength.

Maintenance and Consolidation. The Target in first Quinquennium.

20. The Silk Panel are therefore of opinion that the first quinquennium should be devoted primarily to the maintenance and consolidation of the existing silk industry of India. It goes without saying that an industry which has expanded against time, so to speak, and under extraordinary circumstances which exist no longer, must have many weak links in its organisation. By consolidation the Panel mean, the strengthening of all weak links and the organisation of the industry to adapt it to post-war conditions and to meet foreign competition. The Panel consider that the main directions of consolidation may be grouped as below :—

Requisites of Consolidation.

(1) Improvement of mulberry cultivation,

(2) Adequate supply of disease free seed, and improvement of quality,

(3) Control of Silk Worm Diseases,

(4) Improvement of rearing, reeling, organisation and marketing,

(5) Development of the Spun Silk Industry and full utilisation of by-products and

(6) Inter-Provincial-and-States co-operation in regard to these objectives.

I.—IMPROVEMENT OF MULBERRY CULTIVATION.

21. Upto the present time the varieties of mulberry planted and methods of cultivation in the several provinces and states were governed by custom. In some provinces experiments with the object of ascertaining and popularising better varieties and better methods of propagation and cultivation had been carried out and some valuable results had also been obtained. The Panel are of opinion that the improvement of moriculture or mulberry cultivation should receive special attention. The cost of mulberry represents nearly 60 per cent. of the cost of production of cocoons, and at a time when every effort should be made to reduce cost, the cost of mulberry cultivation is undoubtedly the end at which the problem of reduction could be best tackled. The representatives of the Provinces and Mysore were emphatically of opinion, with which the Panel fully agreed, that the regional Governments concerned should start an adequate number of mulberry farms of sufficient extent at strategic points over the sericultural area for experiments with different varieties of grafted and budded mulberry trees. These farms should also serve as nurseries for distribution of varieties found suitable. The object should be to increase both the yield and the nutritive value of the leaves.

Government Mulberry Farms and Nurseries.

Research in Mulberry.

22. Mr. A. T. Janakiram, the Madras Silk Expert, has prepared a 5-year plan of development which includes this work. The Panel recommend the preparation of similar plans for the other provinces and states.

Tree Mulberry as a Supplement to Bush Mulberry.

23. While on this subject, the Panel would like to make a few observations on the feasibility of introducing the cultivation of tree mulberry in the provinces and states where the prevailing method of raising it is bush cultivation. These observations have no reference to Kashmir where the conditions are entirely dissimilar to those in other parts of India. The advantage in raising mulberry trees is that the cost of maintenance of an acre bearing such trees is less than a third of that of the same extent of bush, and the cost of leaf per pound is about a half. (See the figures given on pages 54-55 of the Report of the Indian Tariff Board, 1940). Against this is to be set off the fact that the yield from an acre of trees is considerably less than that from an acre of bush. There is an impression, so far not fully confirmed by scientific observation, that leaves from trees offer some advantages in the

rearing of foreign race worms. The Panel attempted to assess the comparative merits of tree plantation and bush from the point of view of economy. They had the advantage of discussion of this point with the representatives of Madras and Mysore who had some experience and opportunities for comparison. The opinion of the Panel, which was concurred in by those representatives, was that the balance of advantage is not decisively on the side of tree plantations. Trees may be suitable for inferior land, for lands far from villages, and lands which are not being utilised for other purposes at present. Compared to the bush, tree cultivation is extensive and not intensive in method, and therefore might be adopted only where the value of land is not great. At a time like the present when agricultural resources have to be husbanded and made the most of for food production, any method of cultivation which requires more land for the same quantity of produce would be a national waste. Mr. Shamsuddin Khan stated from experience that the impression that trees needed less care than bush was not correct, as trees were susceptible to diseases, such as fungus and dry-rot, which destroyed them, and that they required attention and timely care. Mr. H. S. Govinda Rao, Superintendent of Sericulture in Mysore, said that the idea was not to substitute tree for bush, but to supplement the bush with trees by utilising uncultivated margins of land and land which bore no crop. The Panel are in agreement with the opinion of the representatives from Mysore.

Consolidation and Improvement more Important than Expansion.

24. While on this subject the Panel wish to emphasise that at the present stage, improvement and consolidation of existing area under mulberry is vastly more important than extension. Their reasons for this conclusion are :

(1) The output of mulberry leaves per acre can be increased considerably by the introduction of better varieties and more effective cultural methods.

(2) Sericulture being a home industry the most useful way of increasing leaf production is intensive cultivation of land close to villages rather than cultivation of outlying land whereby labour would be wasted in covering the distance between home and garden.

(3) Mulberry has reached its present extent by means of natural adjustment relatively to food crops. Further extension raises acutely the question of their relative national importance. The Panel do not wish to make proposals which might tend to disturb this equilibrium at the present time.

(4) Mulberry cultivation has even now much out-grown the capacity for production of examined silk worm eggs, and perhaps the most difficult problem with which sericulture is faced is to develop the latter sufficiently to restore the balance. Further expansion of mulberry would immediately worsen the disproportion, and add to the already great difficulties of the

problem of seed production. These considerations do not apply to Provinces and States which have no sericulture at present, and which wish to take it up newly as suited to their conditions. There may be as yet unexplored potentialities in Bombay, Hyderabad and Travancore. Utilisation of such virgin resources, if initiated and developed on sound lines, would undoubtedly be an addition to the national asset.

II.—ADEQUATE SUPPLY OF DISEASE FREE SEED.

Nature of Problem.

Kashmir.

25. The total area now under mulberry in India, excluding Kashmir, is 1,12,632 acres. In Kashmir there are roughly 1,500,000 trees. Each province and state has its own peculiar problems in regard to seed. In Kashmir the seed reared is univoltine; and before the war about a half of it used to be imported from abroad. When foreign sources failed owing to the outbreak of hostilities, Kashmir was thrown very much on her own resources. During 1944-45 out of a total requirement of 58,113 oz of seed as much as 42,025 oz were locally prepared. While on the one hand concentration of seed production and seed distribution in the hands of Government makes for safety and efficiency of administration, the comparative dependence on foreign sources for seed supply is undoubtedly an element of weakness. Experience in Kashmir has disclosed that after the first generation the foreign univoltines deteriorate appreciably. This means that the locally manufactured seed is inferior in yield to the imported one. It is quite possible that research may disclose methods of combating the deterioration by the adoption of means for maintaining the vigour of foreign races; but till this is done it is important that effective steps should be taken to secure regular and adequate supplies of good foreign seed.

Bengal.

26. In Bengal there are three indigenous races, Nistri, Chhotapoloo, and Barapoloo but these are not considered satisfactory. Chhotapoloo and Barapoloo may be considered almost extinct through hopeless degeneration and could at best be reared in but one crop a year. The main problem in Bengal is to provide a seed supply capable of producing better cocoons. Introduction of hybrids namely, Nismo and Nistid, by the Department was a marked improvement; but successful rearing of them in hot and rainy seasons was found difficult. The Bengal Government, it is understood, has sanctioned a scheme of Seed Organisation designed to meet the entire seed requirement of the province by programmed development in a period of five years. Under this scheme the seed supply is to be cellular; 30 per cent of it is to be issued from Government Grainages and the other 70 per cent from Grainages under Government supervision and control. There is also an idea of importing foreign races for the purposes of hybridization, but the advantages of hybrid seed being still problematical, its introduction is to be considered only if

experiments yield satisfactory results. This scheme seems to be sound and the Panel have no remarks to offer.

Mysore. 27. The present seed position in Mysore is that examined seed meets only about 30 to 40 per cent. of the total requirement. For reasons, some of which were beyond control, seed production has lagged far behind mulberry cultivation, and there is much leeway to make up. Mr. H. S. Govinda Rao, Head of the Mysore Sericultural Department, said that his Government has a scheme for increasing the supply of examined seed by about 6,000,000 of layings a year so that in five years the total production including the existing one would be about 5 crores of layings as against the total demand of 6 crores for 70,000 acres under mulberry. The acreage under mulberry is at present 78,000 and it seems to us that the total requirement would be nearer 8 crores of layings than 6 crores. It is probable that the Mysore programme may have to be revised, especially in view of the fact that improved methods of cultivation are sure to increase the yield of mulberry leaf, and correspondingly raise the demand for seed. Mr. Govinda Rao also brought to the notice of the Panel that seed expansion according to programme had been seriously hampered by the difficulty in obtaining microscopes. In spite of persistent and strenuous efforts since 1942 his Department has been able to secure only 65 out of a total requirement of 165 microscopes, and even these supplies came in at long intervals. It is stated that the seed position in Mysore is improving rapidly, and that new seed areas are being opened out for securing an adequate supply of seed cocoons of the Mysore race. The crux of the situation here seems to be an assured and sufficient supply of satisfactory seed cocoons of foreign races, because the demand is for First Generation hybrids for the production of reeling cocoons.

28. The organisation of seed production in Mysore consists of Government, and Subsidised Private grainages. The present strength is 17 Government and 120 Aided Grainages. The maximum annual production in an Aided Grainage is 500,000 layings or roughly 3,500 oz. The Aided Grainages receive a subsidy from Government fixed *pro rata* on the quantity of disease free seed manufactured by them. They are subject to Government supervision and have to furnish returns and reports about their work. They obtain seed cocoons of the Mysore race from approved seed areas, and layings of foreign races from Government grainages which they either rear themselves, or cause to be reared by selected agency, for the foreign race cocoons required. With these they prepare one generation of hybrid cellular seed which they distribute to the villages assigned to each grainage. The original seed, both Mysore and foreign races, is issued from the Government grainages. In regard to Mysore seed, it is first propagated by distribution to selected rearers in exclusive

seed areas where the rearer is under strict supervision and control. It is these seed areas that supply the Aided Grainages. The foreign eggs are prepared cellularly in Government grainages and distributed direct to the Aided Grainages.

29. As a system this is quite sound ; but the actual working has been seriously handicapped by inadequacy of foreign seed and occasional unreliability of the seed cocoon areas. Efforts are being made to overcome the latter difficulty.

Madras.

30. The problem of Madras is exactly similar to that of Mysore. Madras has recently been able to secure some selected varieties of foreign races, through her Silk Expert who was deputed to China for this purpose among others ; and has also a well-equipped Hill Station for the propagation of these races at Coonoor on the Nilgris. According to the reports received by us there were, in 1944-45, 6 Government and 30 Aided Grainages working on lines similar to those of Mysore. Mr. A. T. Janakiram, Silk Expert, Madras, informed the Panel that about 60 per cent. of the seed requirement of the province is being met and that it is hoped to meet the whole in a couple of years. Mr. Janakiram also informed us that his Department's plan is to concentrate the entire production of seed in Government Grainages, and gradually to liquidate the aided system. He thought disease free seed such a vital concern that it should not be left to private agency which might prefer personal gain to quality. This is probably feasible in Madras which has a compact sericultural area.

Seed Requirement of Indian Sericulture.

31. Taking the present area under mulberry in India, excluding Kashmir, at 1,13,000 acres, the total requirement of seed would be about 12 crores of layings requiring about 300 fully equipped grainages. The cost of buildings and equipment of each grainage would be about 20,000 rupees.

32. To enable the grainages to function efficiently, it is necessary to organise special seed cocoon areas for the production of indigenous races and hill stations for the rearing of foreign races without deterioration. The cost of these items varies so greatly according to localities and conditions that no useful estimate of cost can be prepared. It is probable that the co-operation of Kashmir which has experience; and, so far as can be seen, a suitable environment, may be very useful in the solution of the problem relating to foreign races.

Essential Requisites of a Sound Seed Organisation.

33. The requisites of a seed supply for India are :

(1) Effective control of the seed organisation by Government,

(2) Effective retention by Government agency of supply of original seed.

(3) Efficient organisation for supervision of technique and ensuring honest work by Aided Grainages,

(4) Insistence on the cellular manufacture of seed,

(5) Arrangement for adequate and efficient supply of suitable foreign races

(6) Statutory control of silk worm diseases and

(7) Continuous research and work on the improvement of the races and combinations reared.

Should Industrial Seed be entrusted to Aided Private Agency.

34. In regard to the agency for the manufacture of industrial seed, Madras favours centralisation in Government hands. while the practice in Mysore conforms to that prevailing in Japan. In Madras, concentration is possible because the area is comparatively small and compact. In Mysore the system of aided grainages has been found to work quite satisfactorily, and it has besides the advantage of opening out a career for educated young men in rural parts. The relative merits are probably a matter of local expediency depending on the volume of the demand and the aptitude and character of the personnel available, and the Panel would prefer to leave this question open. But there is one point on which they would like to insist, and that is, the necessity for strict State Control and the necessity also for a subsidy or bonus to the aided seed producer. If seed is entrusted to private agencies, it must be borne in mind that the manufacture of disease free eggs involves very heavy risks, and is more often than not unremunerative to the honest worker. The strain is hardest in difficult periods, such as when silk worm diseases prevail, and when it is most important to supply good seed. Aided graineurs should be regarded as people who render an essential service which otherwise would have to be done by the Government itself at much greater cost. They should be treated generously and should receive a bonus or subsidy such as would enable them to be thorough in their technique, and still get a reasonable return. In Mysore the following rates of bonus have been recently sanctioned :

Need and Justification for State Aid to Aided Grainages.

Rs. 2-8-0.—For every 1,000 layings prepared and distributed by the Aided Grainages.

Rs. 1-4-0.—For every 1,000 layings prepared and distributed by the Aided Grainages which have received assistance for five years or more.

These rates by no means err on the liberal side.

III.—Control of Silk Worm Diseases.

Legislation for Control of Silkworm Diseases.

35. In all sericultural countries laws have been enacted enabling the control of silk worm diseases. The need for this is so obvious that we do not consider it necessary to labour the point. In Mysore there is an enactment enabling the introduction of control in notified areas. A copy of this enactment

is annexed to the report, and similar legislation is recommended for other parts of India.

IV.—IMPROVEMENT OF REARING, REELING, ORGANISATION AND MARKETING.

36. (i) *Rearing* :—There is at present much avoidable loss in rearing as the result of ignorance of correct technique and penny-wise economies in later stages. It is stated that in Mysore the loss from causes other than silk worm diseases is about 25 per cent for pure Mysore and 14 per cent for cross-breeds at the present day. The condition in other provinces may not be dis-similar. The empirical knowledge possessed by the peasant rearer is usually enough to enable him to get a fair crop if nothing goes wrong. Even so, there is a wastage of about 20 to 25 per cent. in brushing, cleaning of beds, etc. With some instruction in correct methods perhaps a half of this loss can be avoided. If anything goes wrong the rearer feels helpless, or adopts quack remedies which in spite of repeated failure still retain their vogue. It is here that skilled supervision and advice can save this situation. Another source of loss is the unscientific crowding of worms in the mounting stage to make a small saving in Chandrike hire. There is in Madras and Mysore a chronic shortage of chandrikes in each sericultural village, which despite actual experience has not been rectified.

Itinerant Supervision of Rearing.

37. An itinerant staff of trained men whose duty it is to inspect rearings in definite groups of villages assigned to each unit might do much to remedy this defect and educate the younger generation in correct methods. The institution, at well equipped and conveniently situated Government Farms, of short term popular courses, consisting of one complete cycle of rearing, and comprising both instruction and practice suited to the comprehension of the ordinary peasant sericulturist would be of great value, and is strongly recommended.

Practical Short Courses in Government Farms for Raiyats.

Sericultural Co-Operative Societies.

38. There is a good deal of avoidable waste of effort in the earlier stages of rearing, which can be remedied by co-operation. In fact, co-operation would furnish a solution to all the above troubles. The essential activities comprised in rearing consist of mulberry cultivation, seed supply, feeding and care of silk worms, and marketing of cocoons. A co-operative society could assist and secure economy in each of these by starting nurseries and supplying manure; by starting an aided grainage; by engaging trained sericulturists for the care of the silk worms in the earlier stages, and in case of unexpected difficulties ; by stocking and making available such appliances as stands, trays, chopping-knives and chandrikes; and by providing short term credit. A co-operative society could also render useful service by grading cocoons and selling them collectively in the joint interest. The more influential co-operative societies might even have financial backing enough to start filatures of their own.

39. In Mysore a scheme has been prepared to start 35 co-operative societies at the rate of 7 per year for the purpose of starting aided grainages and providing the members with rearing appliances and short-term credit. According to the scheme, in addition to making an initial grant for buildings and equipment, Government will lend a trained man on a salary of Rs. 50 per month for each society, to be borne in equal proportions by Government and the Society. The scheme includes the strengthening of the staff of the Departments of Sericulture and Co-operation for the administration of this development. It is understood that Mysore has under active consideration a scheme for a State-Aided Co-operative Sales Depot for raw silk with the two-fold object of eliminating the disadvantages of dealing through an economically stronger middle man, and of creating an agency for the grading and standardisation of even Charaka Silk. Since the replacement of charakas by filatures can only be a gradual process, an organisation of this kind may not only remove a present defect, but serve to smoothen the transition from charkas to filatures. The Panel are of opinion that the formation of co-operative societies on lines suited to local circumstances would be of great assistance in consolidating the existing industry, which is the first and perhaps the most important stage of our plan of development. They do not propose to go into details, as they think that if the necessity for co-operation is accepted, as they hope it will be, the implementing had best be left to Provincial authorities concerned.

Importance of Reeling.

What Reeling Meant.

Filature Reeling, the best method.

40. (ii) *Reeling.*—The best cocoons in the world can be spoiled by bad reeling. Reeling is therefore the outward expression by which the sericultural industry will be judged by the world. The ideal of reeling is to extract the filaments from the cocoons without break of continuity or loss of their natural qualities of lustre, strength and elasticity, and combine them into a compact yarn of the required thickness. Reeling is the process which harnesses the natural excellence which makes silk the queen of textiles, to the highest requirements of the art of the weaver. It is easy to see that this process requires a careful and perfected technique. The best machinery and processes are those which have been evolved in advanced sericultural countries as a result of long experience and special study. Unfortunately, except in Kashmir where silk is the monopoly of the State and filatures were established by Government from the outset, the bulk of reeling in India, till recently, used to be done on primitive appliances called *Charakas*. The result of this crude method is, that though the cocoons produced by the rearer may be of good quality the reeler converts them into silk poor in all the qualities most prized by the weaver. The silk is neither compact, nor uniform in size, nor clean, nor strong and elastic as silk should be. An even more serious defect is that it is not continuous, for when the thread breaks on the jerky

charaka the broken ends are not knotted but a new end is thrown on. This makes the charaka silk deplorably bad in winding quality and unfit for working with speed machinery.

41. Charaka reeling has been the defect which has confined Indian silk to a narrow market and prevented it from becoming a world commodity. It is very probable that with the change which came over the nature of the weavers' demand owing to his familiarisation with imported silk, the charakas would, in course of time, have mended their technique and combined themselves into filature establishments, or else been displaced by filatures. But the outbreak of war brought in this transformation with a rush, because the Government of India, to meet the urgent demand of the United Nations for parachute silk, extended special encouragement to the filature industry.

42. In 1939-40 the number of filature basins in India were 1,291, of which 891 were in Jammu and Kashmir (Jammu 155, Kashmir 736). In 1944-45 the total number had risen to 4,639, though the number of basins in Jammu & Kashmir remained unaltered.

Statement Showing the number of Filature Basins working in India.

	1939-40.	1940-41.	1941-42.	1942-43.	1943-44.	1944-45
Mysore ..	150	200	295	500	1,361	1,437
Bengal ..	100	120	140	180	1,231	1,735
Madras ..	150	150	150	150	576	576
Jammu ..	155	155	155	155	155	155
Kashmir	736	736	736	736	736	736
Total ..	1,291	1,361	1,476	1,721	4,059	4,639

Though the filatures brought into existence by Government aid had to supply silk at controlled prices very little above the cost of production, yet the grant of priorities and the assurance of a sale provided a cover under which they developed in security. It was a great opportunity for the industry.

43. The problem now is to maintain the development which has been reached and to go on with the work of gradual displacement of charakas by filatures. As against charakas the filature industry requires no protection at all from the State, for the inherent superiority of its product will ensure its prevalence. But protection will undoubtedly be required against other dangers which beset it in the rapidly changing conditions of the post-war period. The comparative shelter under which the industry developed during the war, when its products were required by Government, and when there was no competition from outside, has ceased to exist. Filature silk can only be sold in open market against world competition and it is here that the need for State action arises.

44. The industry is a great asset both in peace and war, and fully deserves protection. It has been found by two Tariff Boards fully to satisfy the conditions which have been accepted as entitling an industry to protection. We think also that there should be as far as possible a continuance of the priorities for material which were so powerful an aid to expansion during the war. The quality of Indian filature silk should be improved by the authoritative establishment of definite standards conforming to accepted International grading, and by the establishment of a system of Government Conditioning Houses for enforcement of such standards. The industry should, for its part, organise itself, and aim at greater efficiency and reduction of costs. The filatures should organise themselves into regional Filature Associations which in their turn should be affiliated to a Central All-India Silk Association, for the maintenance of a uniform policy in regard to purchase, production and sale.

V.—DEVELOPMENT OF THE SPUN SILK INDUSTRY.

45. The spun silk industry is an essential part of sericulture, more especially of the reeling section of it, since it enables the profitable utilisation of silk waste which is a by-product of filatures and charakas. In a competitive world market anything which helps to bring down costs is an essential factor of success, and the part played by the spun silk industry in this regard can well be described as of the first importance. It is an article of faith with reelers that while the realisation from raw silk just covers cost, it is the sale of silk waste that gives them their profits. A scrutiny of the accounts of filatures also bear out the justness of this belief. The function of a spun silk mill is to work up the silk waste which is the unreelable, because discontinuous, part of the silk content of the cocoon, into a continuous yarn known as spun silk. As the production of every pound of silk in a filature results in a by-product of rather more than 0.6 of a pound of silk waste it will be seen how important the utilisation of this product is. Formerly all the waste in the country used to be collected by local traders and sold to large exporting firms. Only a small part of the value came to the reeler. To remedy this state of things, a spinning mill, called the Mysore Spun Silk Mills, Ltd., was started at Channapatna, Mysore State, with Government assistance and participation, with 3,000 spindles specially designed to handle the inferior waste which was the only stuff available, at the time. This enterprise did so well for itself and its environment that it developed rapidly and has recently purchased another 3,000 spindles belonging to the "Jaya Spun Silk Mills" of Bombay. When this outfit is transferred to Channapatna, as is the intention, there will be 6,000 spindles working at Channapatna with a total production of about 120,000 pounds of spun silk, utilising 600,000 pounds of silk waste out of 7 to 8 lakhs of pounds produced in Mysore

Rajasabha Bhushana Diwan Bahadur K. R. Srinivasiengar, M.A., Chairman and Managing Director of the Channapatna Spun Silk Mills, who has extensive experience of all sections of the silk industry as former President of the Mysore Silk Association, is strongly of opinion that the spun silk industry of India should be looked upon as a necessary complement of the filature industry and an essential part of the sericultural industry, and should receive the same solicitude and protection. He recommends that exports of silk waste from India should be prohibited and that the spun silk industry should be developed to the extent necessary for utilising the entire quantity of silk waste produced in the country. He adds that if the existing spun silk mill could expand and take up the whole of the silk waste produced in this country it should be permitted to do so ; but if it was thought that it would be more convenient to divide the spun silk industry into two zones, north and south, with clearly defined spheres of operations, he could see no objection. But the essential thing is to avoid internal competition. He is afraid that owing to the difficulty of getting machinery it might be several years before this object could be achieved, so that to start with there might be an unutilised surplus of silk waste. There was a discussion as to what should be done with this unutilised surplus. If it was permitted to be exported without control, then foreign buyers by paying higher prices for this waste would raise the price even of the waste purchased by the mills, and the industry would thus be indirectly exposed to foreign competition. Finally on the suggestion of Rai Bahadur S. N. Bose it was agreed that even from the outset all the silk waste produced in the country should be purchased by the spun silk mill or mills at a fair price fixed by a small representative Board; and that if in the initial stages this should be in excess of actual requirement such surplus alone should be permitted to be exported by the spun silk mills themselves who should be sole agents for exports of silk waste. At a subsequent meeting Mr. Peychaud objected that if export of silk waste was prohibited, and the spun silk mills were given a monopoly of the article, it would be entrenching them in a position whence they could dictate their own prices. This, he said would be unfair to the filatures and charaka reelers, since their profits almost wholly consisted of what they could get for their silk waste. He contended that either the filatures and reelers should be left free to sell their silk waste in the best market, or some definite machinery should be set up for fixing a price that would be fair to both sides. It was agreed that the satisfactory working of the entire scheme essentially depended on the fixing of a price which would be acceptable to both buyer and seller, and that this could only be done by an authoritative committee containing representatives both of reelers and spun silk mills, constituted and controlled by the Central Silk Board, the setting up of which will be recommended later on in the Report.

46. A question was raised whether the Panel in recommending the zonal distribution of spun silk mills contemplated only two spun silk mills—just one in each zone—or two groups of mills. The Panel do not intend to place fetters on the starting of more than one mill in each zone, provided that it was an economical unit; but they are emphatically of opinion that mills in the same zone should be associated in regard to purchases and sales in such a manner as effectively to abolish competition and clash.

47. The Panel make the following recommendations relating to the spun silk industry :

(1) That for the purpose of the spun silk industry, India may be divided into two zones, north and south, and that there may be but one spun silk mill or group of associated mills for each area dealing with all the waste produced in it, and that these mills should purchase all the silk waste in their respective areas at a fair price to be fixed from time to time,

(2) That what is a fair price shall be assessed by a small committee consisting of representatives of both filature and spun silk mill interests appointed by, and working under, the general direction and control of, the Central Silk Board of India,

(3) That exports of silk waste from India should be prohibited,

(4) That the spun silk mills should be afforded all necessary priorities and facilities for manufacture and transport of machinery to expand their operation sufficiently to cope with their responsibility, and

(5) That they should be regarded as sole agents for the export of Indian silk waste but permitted to export only the unutilised surplus that they, in spite of their best efforts, have not been able to utilise.

48. Another suggestion received was that mutuality of interest between the filatures in a zone and the spun silk mills concerned should be promoted by each holding shares in the other. This is worth the consideration of the interests concerned.

VI.—Organisation and Inter-Provincial and States Co-Operation.

49. It is necessary to organise the industry both in its constituent parts and as a whole. The Panel are fully alive to the difficulties of the task. All branches of the industry have to be organised and co-ordinated into a well-knit whole. Seed manufacturers should be organised for the better discharge of their responsible functions; cocoon producers should have their own organisation for a fair marketing of their cocoons ; filatures and spun silk mills should likewise form

regional associations; there should also be associations of silk merchants. The various associations in a region should come together in a Silk Association for the State or Province concerned, enjoying recognition and support from the administration of the region. The Regional Silk Associations should be federated in an All-India organisation which may be called the Central Silk Association of India, through which the country's industry as a whole can express itself in an articulate and coherent manner.

State Action —Need and Scope.

50 We are aware, and indeed nothing can be more obvious than this, that progress along the lines of action recommended above is essentially dependent on a generous State policy of initiative, pioneering and assistance. We are in entire agreement with the Tariff Board for silk when they say :

> " Concerted action in the industry in all parts of India is imperative for the existence of the industry as also for the improvement " (Para 41, Report 1934).

51. Some of the recommendations involve action which only the State can take; for instance, scientific research without which talk of improvement would be idle, control of silk worm diseases, spread of co-operation and knowledge, protection against foreign competition, and establishment of internal solidarity by inter-provincial and states' co-operation. These are patently objects not within the competency of individuals or private associations; they can only be attempted and achieved by a central authority working through, and in co-operation with, Provinces' and States' administrations.

Import Technical Aid.

52. It may be necessary in the initial stages to obtain the assistance and advice of technicians from abroad. The Panel believe that there is already so much knowledge and experience available in India that it is only on rare occasions and for specific purposes that foreign assistance may be necessary. The fact of necessity is one for the Central Silk Board, to be constituted as recommended herein after, to find. If a case has been made out, the Government should accept the responsibility of engaging the services of experts from abroad.

Enforcement of Standard of Quality.

53. The establishment and enforcing of uniform standards of quality throughout India is also legitimately in the province and state action.

54. Even of the other activities outlined in our plan of development there are hardly any which can dispense with State aid for their progress on healthy lines.

Research Regional Stations.

55. In the opinion of the Panel there should be a well-equipped research institution for each Sericultural Region and a Central Institute for the whole of India where the results of research in the regions are collected and co-ordinated. There must be a free interchange of results, reports, and ideas between the regional and the central institutes. The Central Institute should provide facilities for representative workers

from the regional institutes to conduct or complete work started by them in the regions. The regional institutes need not confine themselves to purely local or regional subjects or objectives, but might conduct every grade and class of work for which they have talent and facilities. The Central Institute should function in addition to its research activities as a place for pooling information. It may include in its scope of work investigations relating to tussar and other non-domesticated silks.

Central Institute.

56. The Mysore Scheme for the establishment of a Central Institute at Channapatna was considered. There is no doubt that the Mysore Research Institute would enjoy considerable advantages of position and environment being in the midst of one of the best developed sericultural tracts of India, and that it has also been conceived on a broad and comprehensive basis. If this institute is constituted and organised on the lines recommended, it is a point for consideration whether it could not be adopted as a Central Institute for the whole of India, and provided with facilities for the sericultural provinces and states to depute scientists to conduct research on their behalf. The Panel feel that, provided the equipment and personnel at the Channapatna Institute are efficient, it would be an extravagant waste of effort to duplicate an institute of that magnitude. They think that in addition to the scientific sections specified in the Mysore Scheme there should be one for the study of sericultural economics, for the utilisation of material made available by the scientific sections.

57. The Mysore scheme provides for a research institute with 6 departments—Physics, Chemistry, Botany, Zoology, Sericulture and Engineering and involves a total expenditure of 16.99 lakhs initial and 2.47 lakhs recurring.

58. Mr. K. Shamsuddin Khan from Mysore State urged that higher education of University standard should be provided in sericulture. His proposal was that there should be a College course leading to B.Sc. (Sericulture) just as there is at present one leading to B.Sc. in Agriculture. The Panel are in cordial agreement with this proposal.

im to Secu- Reasonable Remuneration to Basic Workers.

59. *State Aid and Control*—The Panel consider it superfluous to urge the self-evident claims of the sericultural industry for protection. They are of opinion that the State should take measures to ensure to workers of all grades in the industry, from seed manufacturers and rearers to the reelers of silk, a remuneration considered sufficient to be an incentive both for continuance and improvement. The rate of remuneration has to be fixed and revised from time to time to accord with altering circumstances, such as the cost of living, prices of agricultural produce which compete with mulberry, and wages of labour. The level of price so determined should be secured and protected by a tariff policy when conditions make such a

course imperative. On the insistence of the representatives of all Provinces and States, and in full agreement with them, the Panel would lay special emphasis on the necessity for vigilant tariff protection.

60. *Control of Prices* :—Experience of the control of silk has disclosed the almost insuperable difficulties of operating it on an all-India basis, and the tendency of each province to deviate from it according to its own needs and circumstances. This has resulted in disorganisation and malpractices. Having regard to the fact that the general policy is towards decontrolling, and that silk is an article of luxury, this Panel is of opinion that silk should be decontrolled without delay.

61. *Standardisation of Products* :—It is essential that the State should concern itself with improving the quality on the country's silk, by establishing, and maintaining standards. This can only be done by establishing Government Conditioning Houses. We recommend that every producing State or Province should set up one or more Conditioning Houses and the certificates issued by them should be a guarantee of quality. The Conditioning House should conform to International Standards. In addition, to deal with silk imports, there must be at each port of entry a Conditioning House run by the Central Government. The existing Conditioning House at Calcutta might be retained by the Central Government and fully strengthened and equipped. The Central Government should appoint an all-India Inspector of Conditioning Houses whose duties should be to visit periodically all the conditionings houses in India and make a report to the Silk Board to be set up by the Central Government.

62. The establishment of a system of Conditioning Houses throughout India will lead to the gradual displacement of crude appliances and methods of reeling by modern filatures and a better technique. In fact, State policy must aim at improving every branch of the industry from moriculture to the production of raw silk, and the last is not the least important, since without it, all the rest would be largely futile.

63. When the draft Bill for the regulation of licensed warehouses in India is put on the Statute Book, it would be highly advantageous to bring this provision into operation in Sericultural Provinces and States. We strongly recommend this course. The best method of popularising warehouses would be for Government to attach a warehouse to each Conditioning House established. This would facilitate the work of the conditioning houses and help the gradual upgrading and standardisation of silk.

SECOND STAGE.

64. The second stage of development is the expansion of the industry to meet the entire Indian demand. This, in fact,

involves the third stage also, viz., the utilisation of all-India's potentialities, for the production of silk. The Indian consumption of silk in 1938 was about 10-1|4 million pounds :

1,500,000 lbs.—Silk produced in India

2,250,000 lbs.—Raw silk imported

6,500,000 lbs.—Silk imported as manufactured fabric.

Limits of Expansion. It is probable that in the post-war period there might be an increase in the silk consumption of India. It may not be far from correct to assume that during the period for which we are planning, the Indian demand may mount up to 15 million pounds. To produce this quantity of silk in India we would require an area of about 750,000 acres under mulberry. Whether land to make up this total is available in suitable areas, and if so, whether the national economy can spare it from food production for silk, are points on which we have no sufficient information. The States and Provinces in their forecasts have set for themselves a target for the expansion of mulberry to a further 49,868 acres in the next five years as per details given below :

	Pre-war.	Present.	Target.
Mysore	26,500	78,000	1,00,000
Madras	7,060	18,026	25,000
Bengal	10,086	15,550	25,000
Bombay	..	20	5,000
Bihar	..	20	5,000
Central Provinces	..	16	2,500
Total ..	43,646	1,12,632	1,62,500

This may be accepted.

EXPANSION DURING THE THIRD PERIOD OF FIVE YEARS.

Ultimate Target. 65. Generally speaking, after a particular stage of expansion has been reached, further additions become increasingly difficult. We do not think that during the final period of five years the expansion of mulberry cultivation is likely to be more than about 25,000 acres which will give us a total area of 1,87,500 acres for India excluding Kashmir. The case of Kashmir has to be considered separately, because the basis there is the number of trees and not the acreage. We are informed by Mr. Peychaud that during this period of fifteen years an increase of 50 per cent. may be expected in the production of silk in Kashmir. On an average calculation we might expect to produce annually about 3,750,000 or 4,000,000 pounds of silk in India at the end of fifteen years. We feel that this is a practicable target. This requires consolidation of the present position on the lines we have indicated, and further development on the same lines without any sacrifice of efficiency. When we have reached this limit there would still be a deficit of over 11,000,000 lbs. of silk which India would have to import. It seems to us, therefore, that the most that could be attempted during the next fifteen years is consolidation of the existing position and gradual expansion such as would enable India to meet about a fourth of her total requirements of silk. We would here emphasise the necessity for discrimination in India's tariff policy between imports of raw silk, and imports of silk fabrics. In the interests of the weaving industry, this discrimination must be decisively in favour of raw silk—and this is a point which cannot be over-emphasised.

Export Markets

66. In these circumstances there would never be any surplus, as such, for catering for the export market except as regards artistic fabrics. But it would be unwise to shut out the possibility of exports altogether, since as producers of a world commodity we should secure a certain amount of world publicity. It is also conceivable that cases may arise when our most advantageous means of obtaining goods we need from a foreign country may be to trade our silk there.

Recommendations as to Foreign Raw Silk entering as War Reparations.

67. The Panel understand that a large quantity of raw silk and silk piece-goods from Japan is coming into the possession of the Government of India by way of war reparations. The price fixed as between Japan and India for these goods will be on the basis of the realisation on Japanese silk in New York. We understand that the ceiling prices imposed by buyers in America on Japanese silk is $3.5. This price is so fantastically low as to have no relation at all to the realities of Indian silk production. The effect of releasing silk at the same price on the silk market in India would be disastrous to the indigenous industry. Though the circumstance is temporary, the shock may have serious consequence. This Panel are, therefore, of opinion that, no matter at what prices the silk is acquired by the Government of India, it should only be released in the Indian market at the prevailing price of Indian silk. This price may be the controlled price, if control is in operation, or else the silk may be sold by public auction after due publicity. The resulting profit naturally belongs to the Indian Government as representing the Indian nation. The Panel recommend that a very considerable part of this profit might be utilised for the benefit of the silk industry and for implementing the recommendations made in this report.

Essential need for a Central Silk Board.

68. The Panel trust that the recommendations submitted above when approved by Government will constitute a definite policy calculated to develop the sericultural industry to the limits of its natural scope. We have next to devise an efficient and capable organisation for implementing that policy. Such an organisation must combine an intimate knowledge of the industry on both the technical and commercial sides, with official authority to give effect to its findings. It should also

Recommendations for constitution.

be such as to secure the adherence of all sericultural parts of India by giving them reasonable participation in deliberations on matter of policy. It is only live touch that can adapt policy to the varying needs of a living and growing industry. The Panel strongly recommend the setting up of a Central Silk Board of India, so constituted as to bring together the knowledge and interests of all silk producing parts of the country. On this Board each sericultural province or state should have two representatives, one representing the administration of the province or state, and the other the private interests in it. If there is a Silk Association it may be given the privilege of electing or nominating the member for private interests. If there is not, the Provincial Government may, till a Silk Association is formed, be asked to nominate the representative of private interests also. As the privilege of representation comes to be realised and appreciated this would stimulate the formation of sericultural associations which is one of the objects we have in view. The Military Department (Controller-General of Inspection) might be allowed to send a representative. The Board may be presided over by the Member in charge of Industries, or if that is not possible, by the Secretary of that Department. We are of the opinion that the Board should be a statutory body, entitled to be consulted on all matters of policy relating to sericulture, such for instance as control legislation, and protective measures. It should have a Secretariat of its own staffed by technically competent officers. It should be entitled to be consulted on all matters of policy. It should also have control of the Central Research Institute.

69. The Panel met the representatives of the States and Provinces for a discussion of the recommendations made in the Report. The recommendations, on the whole, have received a very encouraging measure of support and agreement from all quarters. The valuable suggestions received from the representatives of the States and Provinces have been further considered by the Panel and incorporated in this Report which may be regarded as final.

N. RAMA RAO,
Chairman.

Members.

S. RATNAM,
H. PULMAN.
S. N. BASU,
R. PEYCHAUD,

HUMAYUN MIRZA,
Secretary.

SUMMARY OF RECOMMENDATIONS.

While the scope of their enquiry is a world commodity like raw silk which in its development from the cocoon of the silkworm into the product of the filature, passes through the operations of moriculture, sericulture and reeling, each process giving occupation to a difficult set of more or less skilled operatives and forming a separate branch of the silk industry, the Panel have left to each of the concerned Provinces and States to set up a committee of experts to advise on the development of such of the non-domestical silkworms (tassar, muga and eri) as are found in their respective areas.

The Panel have decided that in the context of Indian food conditions as they are and as expected to continue the development of the silk industry will have to be mapped out over a period of 15 years in 3 stages of 5 years each as follows :—

THE FIRST QUINQUENNIUM.

The marked difference of 68,986 acres between the present and pre-war figures of acreage of bush mulberry cultivation as revealed by the following statement is indicative of the stimulus provided by the war for such imperative needs as the fabrication of parachutes *et cetera* :—

State/Province.	*Pre-war.* acres.	***Present.*** **acres.**
Mysore	26,500	**78,000**
Madras	7,060	**18,026**
Bengal	10,086	**15,550**
Bombay	..	**20**
Bihar	..	**20**
Central Provinces	..	**16**
	43,646	**1,12,632**

सत्यमेव जयते

Now that the incentive provided by war needs is no longer present, Government's assistance and encouragement for safeguarding such an essential national asset as the silk industry is an urgent necessity. The Panel are, therefore, of opinion that the first five-year period should be devoted to careful stock-taking of what has so far been achieved and every effort directed to maintaining the existing position of the silk industry by consolidating the present position, the requisites of consolidation being—

(a) improvement of mulberry cultivation

(b) adequate supply of disease-free seed, and improvement of quality ;

(c) control of silkworm diseases ;

(d) improvement of rearing, reeling, organisation and marketing ;

(e) development of the spun silk industry and full utilisation of by-products ; and

(i) inter-provincial|states co-operation in regard to these objectives.

These main directions of consolidation will help to strengthen all weak links in the organisation of the silk industry so as to adapt it to post-war conditions and for meeting foreign competition.

(a) *Improvement of mulberry cultivation.*—In the interests of the consuming public the cost of production of silk needs to be reduced, beginning from mulberry cultivation (the cost of mulberry represents nearly 60 per cent. of the cost of production of cocoons). To achieving this very desirable end, the Governments of the silk-producing Provinces and States should establish mulberry farms and nurseries at strategic points for the purpose of experimenting with different varieties of grafted and budded mulberry trees, yielding increased and nutritive leaves, and the most suitable varieties from these distributed accordingly. This aspect of sericultural work is stressed in the Madras Government's 5-year plan of sericultural development in that Province. The Panel recommend the preparation of similar plans by the other regional Governments.

Where possible bush mulberry should be supplemented with (not substituted by) tree mulberry by utilising uncultivated margins of land and inferior land no good for food crops. The Panel have come to the conclusion that though the trees need as much care as bush mulberry, the cost of the former's maintenance is much less than that of the latter and also the yield of leaves per acre is less in the case of tree mulberry. All things considered, the Panel have come to the conclusion that consolidation and improvement of the existing position are more important than expansion : that while it is neither possible nor desirable to increase the extent of the land horizontally, you can increase it vertically by increasing its fertility. Moreover, seed production has not kept pace with mulberry expansion. These considerations do not apply to new-areas like Bombay, Hyderabad and Travancore which have sericultural possibilities.

(b) *Adequate supply of disease-free seed.*—Each sericultural region has its own peculiar problems in regard to seed. The Panel, in taking due note of this, have the following suggestions to make :—

Kashmir.—Until research discloses methods of combating the deterioration of foreign univoltines so soon after the first generation, Kashmir will need to secure regular and adequate supplies of foreign seed.

Bengal.—As the Panel Report puts it ; "Bengal's main problem is to provide a seed supply capable of producing better cocoons". In the Bengal Government's 5-year plan of seed organisation, that aspect of it relating to hybrid seed the Panel view with some reservation but, on the whole, the Panel consider the Bengal scheme to be good.

Mysore.—Inasmuch as the extent under mulberry is 78,000 acres, the Panel are of opinion that the increase of examined seed by about 8 crores of layings yearly should be substituted for 6 crores of layings in the mysore scheme. Mysore needs also to secure its full requirement of 165 microscopes.

Madras.—The Madras scheme of concentrating the entire seed production in Government grainages the Panel consider to be feasible as the sericultural area, which is a continuation of the Mysore plateau, is very compact in Madras.

On the subject of Government Grainages versus Aided Grainages, the Panel are of opinion that while, for the reason given above, in Madras it is possible for the agency for the manufacture of industrial seed to be centralised in Government hands, in Mysore, which is a large sericultural tract, it is found expedient to have aided grainages along with Government grainages. The Panel have preferred to leave the question open as the relative merits of Government and aided grainages are matters of local expediency ; but they would insist upon strict State control and they also stress the need and justification for subsidizing some private grainages. The seed requirement of India as a whole is 12 crores of layings requiring about 300 fully-equipped grainages, buildings and equipment of each grainage costing about Rs. 20,000. The Panel further recommend the organisation of special seed cocoon areas for the production of indigenous races and hill stations for the rearing of foreign races without deterioration. In fine, in the Panel's view, the essential requisites of a sound seed organisation are :—

(i) effective control of seed organisation by Government ;

(ii) effective retention by Government agency of supply of original seed ;

(iii) effective organisation for supervision of technique and ensuring honest work by aided grainages ;

(iv) insistence on the cellular manufacture of seed ;

(v) arrangement for adequate supply of suitable foreign races ;

(vi) statutory control of silk worm diseases ; and

(vii) continuous research work on the improvement of the races and combinations reared.

(c) *Control of silkworm diseases.*—There should be an enactment, as in Mysore, to control silkworm diseases.

(d) *Improvement of rearing, reeling, organisation and marketing.*—

Rearing.—The Panel recommend an itinerent staff of trained men to inspect rearings in groups of villages in order to remedy the losses due to diseases, unscientific crowding of worms in the mounting stage in *chandrikes,* brushing, cleaning, etc. The Panel recommend that the chronic shortage of *chandrikes* in the sericultural villages of Madras and Mysore should be rectified. Besides the itinerent supervision of rearing, the Panel recommend practical short courses in Government farms for raiyats. As a sovereign remedy for all the ills that beset the silk industry in its initial stages, the Panel recommend the institution of co-operative societies on lines suited to local circumstances. This is the first and most important stage of the plan of development. Indeed, the Panel are of opinion, " since the replacement of charakas by filatures can only be a gradual process, an organisation of this kind may not only remove a present defect, but serve to smoothen the transition from charakas to filatures ".

Reeling.—The hope of the silk industry in India lies in the displacement of charakas by filatures in the interests of both qualitative and quantitative production. The number of filature basins today is 4,639 as against 1,291 in 1939-40. Filature silk has to face world competition, and it is just here that the need for State action arises. In the words of the Panel Report, " It has been found by two Tariff Boards fully to satisfy the conditions which have been accepted as entitling the industry to protection. We think also that there should be as far as possible a continuance of the priorities for material which were so powerful an aid to expansion during the war. The quality of Indian filature silk should be improved by the authoritative establishment of definite standards conforming to accepted international grading and by the establishment of a system of Government Conditioning Houses for the enforcement of such standards. The industry should, for its part, organise itself and aim at greater efficiency and reduction costs. The filatures should organise themselves into regional filature associations which in their turn should be affiliated to a Central All-India Silk Association, for the maintenance of a uniform policy in regard to purchase, production and sale ".

(e) *Development of the spun silk industry.*—The Panel's recommendations are as follows :—

(i) that for the purpose of the spun silk industry, India may be divided into two zones, north and south, and that there may be but one spun silk mill or group of associated mills for each area dealing with all the waste produced in it, and that these mills should purchase all the silk waste in their respective areas at a fair price to be fixed from time to time ;

(ii) that what is a fair price should be assessed by a small committee consisting of representatives of both filature and spun silk mill interests appointed by, and working under, the general direction and control of the Central Silk Board of India ;

(iii) that exports of silk waste from India should be prohibited ;

(iv) that the spun silk mills should be afforded all necessary priorities and facilities for manufacture and transport of machinery to expand their operation sufficiently to cope with their responsibility ; and

(v) that they should be regarded as sole agents for the export of Indian silk waste but permitted to export only the unutilised surplus that they, in spite of their best efforts, have not been able to utilise.

The Panel also strongly recommend filature and spun silk mill interests in a zone holding shares in each other's concern.

(f) *Inter-provincial|states co-operation in regard to these objectives.*—In recommending the organisation of the industry in its constituent parts and as a whole, the Panel observe : " Seed manufacturers should be organised for the better discharge of this responsible functions ; cocoon producers should have their own organisation for a fair marketing of their cocoons ; filatures and spun silk mills should likewise form regional associations ; there should also be associations of silk merchants. The various associations in a region should come together in a Silk Association for the State or Province concerned, enjoying recognition and support from the administration of the region. The Regional Silk Associations should be federated in an All-India organisation which may be called the Central Silk Association of India, through which the country's industry as a whole can express itself in an articulate manner ".

As regards the action Government should take, the Panel recommend—

(a) tariff protection ;

(b) proper machinery for each branch of the industry so as to improve quality and increase output ;

(c) inter-provincial and states co-operation ;

(d) import of technical aid ;

(e) a Central Silk Board to be constituted, representative of all interests ;

(f) research—each sericultural region to have its own institute and a central institute to co-ordinate the work of all these regional stations, the Central Research Institute preferably being the Mysore Government one at Channapatna. There should also be a University degree in Sericulture ;

(g) de-controlling of silk ; and

(h) silk products should be standardised, for which purpose conditioning houses should be established to which should be attached licensed warehouses. The Central Government should appoint an All-India Inspector of Conditioning Houses.

THE SECOND QUINQUENNIUM.

Assuming that the Indian demand will be not less than 15,000,000 lbs. of silk as against the pre-war (1938) demand of 10,250,000 lbs. the area required under mulberry for the production of 15,000,000 lbs. of silk would be 750,000 acres. The Panel recommend proceeding both by way of expanding mulberry cultivation and of intensifying it. By expanding cultivation, the Panel mean bringing more and more land, however little that may be, that permits of mulberry cultivation, and that has not been cultivated, into mulberry cultivation. By intensifying cultivation, the Panel mean producing more leaves per acre of land than has been done so far. All that is possible, however, is 1,62,500 acres as per details below (an increase by 49,868 acres over the first quinquennium) :—

Mysore	1,00,000 acres.
Madras	25,000 acres.
Bengal	25,000 acres.
Bombay	5,000 acres.
Bihar	5,000 acres.
Central Provinces	2,500 acres.
	1,62,500 acres.

THE THIRD QUINQUENNIUM.

The Panel consider that during the final period of 5 years, the expansion of mulberry cultivation is not likely to be more than 25,000 acres, the area thus totalling 1,87,500 acres (excluding Kashmir where the basis of calculation is the number of trees). Inclusive of the increase of 50 per cent. in the production of silk in Kashmir, the Panel do not foresee all-India production to be more than about 4,000,000 lbs. per annum at the end of 15 years. The Indian demand being put at 15,000,000 lbs. the deficit of 11,000,000 will have to be made up by imports. The Panel nevertheless consider that it would be unwise to shut out the possibility of exports altogether for reasons of publicity and of bartering Indian silk for other goods, if need be.

On the immediate question of competition from Japanese silk entering India by way of reparations, the Panel opine that it should not undersell Indian silk ; otherwise the consequences would be disastrous to the indigenous industry.

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HUMAYUN MIRZA,
Secretary

APPENDIX A

DEPARTMENT OF PLANNING AND DEVELOPMENT.

General Directive to Industrial Panels.

It is the function of panels to make recommendations to Government regarding the development of industries, both existing and new. These recommendations should be so framed as to enable Government to prepare a detailed phased plan for the five years following the cessation of hostilities, as the first stage of a 15-year plan of industrial development for the whole country.

2. In order to assist them to formulate recommendations, panels will be supplied, as far as possible, with factual information prepared by the panel secretaries. In the case of new industries, the information will consist of a general survey of the industry and the importance of starting it in India, the availability of raw material, the power requirements, the demands of the Indian markets and the probabilities of exports. In the case of existing industries, the information will naturally be more comprehensive ; it will indicate, in addition, the location of existing units, the types of goods produced, the total production under each category and the assistance, if any, given by Government. These items are to be regarded as illustrative and not exhaustive.

Government will give each panel, as a basis, for discussion, the provisional target to be aimed at in the first five-year period and, wherever possible, of the target to be reached in 15 years.

3. The recommendations of the panels should cover the following points :—

(1) The scope and extent of development, including the type of products recommended.

(1-A) The estimated requirements of capital goods together with such details of those requirements as may be available in India and how much should be imported from abroad.

(2) Whether the industry should be under Government ownership either on grounds of national interest or because private capital is unlikely to take it up, and if so, whether it should be wholly or partly managed by Government.

(3) In the case of industries to be developed other than under State ownership, the capital required for such development, whether the whole of it is likely to be available by public investment and, if not, the extent to which Government assistance may be required.

(4) The extent to which technical advice from abroad may be necessary,

(4-A) The availability and the future requirements of technical personnel so as to obtain a clearer indication of the present short-comings and future needs.

(5) The manner and the degree of co-operation with foreign firms considered necessary and desirable, both as regards capital and management.

(6) The location of the industry.

(7) The nature of the assistance required from Government in the form of protective duties, bounties, research grant, expert advice, etc.

(7-A) The relative incidence of the import duty on the finished goods in comparison with the duty on the raw materials from which they can be manufactured.

(8) If the industry is to be under private ownership and management, what controls, if any, should be exercised by Government.

(9) What should be the organisation of the different units of the industry, e.g., should there be an industrial association ? Would a cartel be desirable

(10) The stages by which the industry should be developed.

(11) Should the industry cater for the export market ?

(12) Should the industry be developed, as in Japan, on the cottage industry basis and, if so, to what extent ?

4. Although, as stated above, the panels may recommend the grant of protection, it will not be their function to consider broad questions of international trade and commercial policy.

5. Joint meetings of the panels should be held, wherever necessary to secure co-ordination particularly where the processes and the products of one industry are connected with those of another.

6. Some of the panels have been drawn broadly and it may be necessary to co-opt members for dealing with specific branches of the industry. Members may be co-opted by the Chairman in consultation with the Industrial Adviser.

7. Before submitting recommendations, panels should consult Provincial Industrial Committees, particularly in the matter of location of industry. They should also, where the circumstances of the case require it, consult Industrial committees in States or State Governments|Durbars. The recommendations should be submitted to Government through the Industrial Adviser.

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APPENDIX B.

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE.

The Mysore silk-worm diseases Control Act, 1943.

ACT No. VII OF 1943.

Whereas it is expedient to provide for the control and eradication of silk-worm diseases in Mysore;

It is hereby enacted as follows :—

1 (i) This Act may be called the Mysore Silk-worm Diseases Control Act, 1943.

(ii) It extends to the whole of Mysore.

(iii) This section shall come into force at once. The Government may, by notification in the official Gazette apply all or any of the provisions of this Act to such areas in Mysore as may be specified in the said notification.

2. In this Act, unless there is anything repugnant in the subject or context :—

(i) " prescribed " means prescribed by rules made under this Act;

(ii) " seed " means and includes seed cocoons, moths, eggs and silk-worms in the first two stages of development;

(iii) " Seed-producer " means any person engaged in all or any of the processes connected with the manufacture or disposal of seed including processes from the selection of seed cocoons to the distribution of seed;

(iv) " seed rearer " means any person who carries on all or any of the processes connected with the rearing of silk-worms with a view to the sale of cocoons for the purposes of seed including operations extending from the incubation of eggs to the harvesting of cocoons.

(v) " silk-worm disease " includes the diseases of Pebrine, Flacherie, Grasserie and Muscardine and any other disease which may be notified as such by the Government.

(2) Prescribing the form, if any, in which, and the particulars with

3. (i) Every seed producer seed rearer and every other person, who carries on all or any of the processes connected with the manufacture of seed or the rearing of silk-worms, shall give information forthwith in such form, if any, and with such particulars as may be prescribed, to the nearest officer authorised by the Superintendent of Sericulture to receive such information, of the occurrence to his knowledge of silk-worm disease in seed, silk-worm or moth in his premises or under his control.

(ii) For the purpose of this section and in the absence of reasonable excuse, the burden of providing which shall lie upon him, every person specified in sub-section (1) shall, when any disease occurs in seed silk-worm or moth in his premises or under his control, be deemed to have knowledge of the occurence of such disease.

4. (i) Any officer authorised in this behalf by the Superintendent of Sericulture may, between the hours of 6 a.m. and 6 p.m. enter upon any land, building, vehicle or place whereon or on any part of which all or any of the processes connected with the manufacture of seed or the rearing of silk-worm is being carried on or where seed, silk-worm or moth is stored, and inspect the same with a view to detecting the presence or otherwise of any silk-worm disease.

(ii) Every owner, occupier or person in charge of any land, building, vehicle or place shall give all reasonable facilities to the officer authorised under sub-section (1) to inspect.

5. (i) On receipt of information under section 3 or on the detection of silk-worm disease under section 4, and subject to the provisions of sub-section (2), any officer authorised in his behalf by the Superintendent of Sericulture or an officer authorised to inspect under section 4, as the case may be, may take, or cause to be taken, such steps as may be considered by him expedient or necessary to prevent the spread of the disease or to eradicate it. Such steps may include the disinfection or destruction of any seed, silk-worm, moth or of any vessel, receptacle or apparatus used in such manufacture or rearing and such other action as may be prescribed.

(ii) In case where the owner or person in charge of the seed, silk-worm or moth alleged to be diseased does not agree to the destruction under sub-section (1) of such seed, silk-worm or moth or any vessel receptacle or apparatus used by him, then an appeal shall lie to an officer authorised in this behalf by the Superintendent of Sericulture, not being below the rank of Senior Sericultural Inspector, in such manner as may be prescribed, and in any case, not later than 24 hours after action is directed to be taken under sub-section (1). The order of the appelate authority shall be final.

6. Any person, who acts in contravention of, or fails to comply with, any of the provisions of this Act, shall on conviction, be punishable with fine which may extend to Rs. 200. The court may in its discretion direct that any seed, silk-worm, moth or vessel, receptacle or apparatus containing them shall be destroyed.

7. No prosecution under this Act shall be instituted without the previous sanction of the Superintendent of Sericulture.

8. No suit, prosecution or other legal proceedings shall be instituted against any peron for anything which is in good faith done or intended to be done under this Act.

9. Every officer acting or purporting to act in pursuance of the provisions of this Act and rules thereunder shall be deemed to be a public servant within the meaning of section 21 of the Indian Penal Code as in force in Mysore.

10. (i) The Government may make rules to carry out the purpose of this Act.

(ii) In particular and without prejudice to the generality of the foregoing provision, the Government may make rules for all or any of the following purposes, namely :—

(1) Notifying such additional diseases, if any, which should be considered as silk-worm diseases ;

which, information should be communicated under section 3 ;

(3) Prescribing the further steps, if any, which may be taken in controlling or eradicating silk-worm diseases under section 5 : and

(4) Prescribing the mode and form of an appeal under sub-section (2) of section 5;

(iii) The Government may also prescribe a fine not exceeding one hundred rupees for breach of any such rule.

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